Monitoring of Restoration Performance in Commencement Bay, Washington: Anadromous Fish Presence, Health, and Degree of Chemical Contamination

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A two year sampling effort at a variety of environmental restoration sites in Commencement Bay, Tacoma, WA, was performed by our research team from the National Marine Fisheries Service (Seattle. WA). Analysis of overall juvenile salmon distribution, size characteristics and chemical contaminant exposure, as well as sediment chemistry and yearly trends is presented in this poster.

Physical characteristics and water quality differences between sites may help explain salmon distribution among sites Concentrations of PAHs, total PCB's and DDTs were analyzed in sediments and whole bodies of selected salmon from all sites. Moderate to high levels of contaminants were present in fish and/or sediments from all sampling sites.

In 2001 the Environmental Conservation Division (ECD) of the National Oceanographic and Atmospheric Administration (NOAA)'s Northwest Fisheries Science Center (NWFSC) began a cooperative fish monitoring program with the restoration Center involving seven restoration sites in Commencement Bay, WA. Exploratory field work was conducted in the summer and fall of 2001 and the first full phase was completed in 2002. From April through October 2003 members of the ECD conducted the second year of field sampling for the restoration project. Six sites were sampled for fish assemblage composition, salmonid diets and chemical contamination of fish tissue from selected species (Chinook, coho pink and chum salmon). Sampling showed that all sites were being utilized to some degree by various fish species, including juvenile salmonids. Yowkwala, Tahoma Salt Marsh, and Skookum Wulge were utilized most heavily by salmonids and least at Mowitch, Middle Waterway, and Olympic View. There was evidence of chemical contamination in fish and sediments from all sites. Sediments at all sites were contaminated by PAHs at concentrations above sediment cleanup goals set by trustees, and DDTs were quite high at the Mowtich site. Body burdens of PCBs in juvenile Chinook and chum salmon from Yowkwala and Mowitch sites were at threshold concentrations associated with adverse effects in salmon.